WEST

Generate Collection

L2: Entry 2 of 4 File: USPT Oct 27, 1998

DOCUMENT-IDENTIFIER: US 5827637 A
TITLE: Silver halide light-sensitive material and image formation method using the same

DEPR:
The magnetic particle includes ferromagnetic iron oxide (e.g., .gamma.Fe.sub.2 O.sub.3), Co-doped .gamma.Fe.sub.2 O.sub.3, Co-doped magnetite, Co-containing magnetite, ferromagnetic chromium dioxide, ferromagnetic metal, ferromagnetic alloy, hexagonal Ba ferrite, Sr ferrite, Pb ferrite and Ca ferrite. Among these, Co-doped ferromagnetic iron oxide such as Co-doped .gamma.Fe.sub.2 O.sub.3 is preferred. The form of the magnetic particle may be any of acicular, rice grain-like, spherical, cubic and platy forms. The specific surface area as S.sub.BET is preferably 20 m.sup.2 /g or more, more preferably 30 m.sup.2 /g or more. The saturation magnetization (.sigma.s) of the ferromagnetic material is preferably from 3.0.times.10.sup.4 to 3.0.times.10.sup.5 A/m, more preferably from 4.0.times.10.sup.4 to 2.5.times.10.sup.5 A/m. The ferromagnetic particle may be subjected to surface treatment with silica and/or alumina or an organic material. Further, the ferromagnetic particle may be subjected to surface treatment with a silane coupling agent or a titanium coupling agent as described in JP-A-6-161032. Also, a magnetic particle having coated on the surface thereof an inorganic or organic material described in JP-A-4-259911 and JP-A-5-81652 may be used.

DEPR:
The magnetic recording layer may be designed to have additional functions such as improvement of lubricity, control of curl, electrostatic charge prevention, prevention of adhesion or head abrasion, or other functional layers may be provided to undertake these functions. At least one or more of the particles is preferably an abrasive as an aspheric inorganic particle having a Mohs' hardness of 5 or more. The composition of the aspheric inorganic particle is preferably an oxide such as aluminum oxide, chromium oxide or silicon dioxide, titanium dioxide, a carbide such as silicon carbide or titanium carbide, or a fine particle of diamond. The abrasive may be subjected to surface treatment with a silane coupling agent or a titanium coupling agent. The particles may be added to a magnetic recording layer or may be overcoated on the magnetic recording layer (for example, as a protective layer or a lubricant layer). The binder used here may be those described above and it is preferably the same as the binder in the magnetic recording layer. The light-sensitive material having a magnetic recording layer is described in U.S. Pat. Nos. 5,336,589, 5,250,404, 5,229,259 and 5,215,874 and EP-A-466130.

DETL:
TABLE 15 _____ Amount Chemicals used in Chemical Sensitization added _____
4-Hydroxy-6-methyl-1,3,3a,7-tetrazaindene 0.39 g Triethylthiourea 3.3 mg Nucleic acid decomposition product 0.39 g NaCl 0.15 g KI 0.12 g Antifoggant (2) 0.11 g Antiseptic (1) 0.07 g _____

L2: Entry 3 of 4 File: USPT Sep 29, 1998

DOCUMENT-IDENTIFIER: US 5814687 A
TITLE: Magnetic polymer particle and process for manufacturing the same

BSPR:
There is no specific limitation to the process for lipophilicating the superparamagnetic substance. Such processes include, for example, a method of treating with a surface treating agent such as silane coupling agent, titanium coupling agent or the like, and a method of adsorbing a fatty acid salt on the superparamagnetic substance. Also, a superparamagnetic substance obtained by removing a dispersant from a commercially available magnetic fluid product may be used.

BSPR:
There is no specific limitation to the process for lipophilicating the super paramagnetic substance. Such processes include, for example, a method of treating with a surface treating agent such as silane coupling agent, titanium coupling agent or the like, and a method of adsorbing a fatty acid salt on the superparamagnetic substance. Also, a superparamagnetic substance obtained by removing a dispersant from a commercially available magnetic fluid product may be used.

BSPR:
A biologically activated material, such as antibodies, antigens, enzymes, coenzymes, or nucleic acid, can be combined with the magnetic polymer particles of the present invention. Particularly preferred biologically activated materials used in the field of diagnosis and research are avidin, streptoavidin, and single stranded DNA fragments. These biologically activated materials can be prepared by a usual culture method. A single stranded DNA fragment can be prepare by a common chemical synthetic method. It is desirable that the single stranded DNA fragment be a nucleotide consisting of 10-70 base pairs. A polyCpolyT fraction comprising cytosine and thymine is particularly preferred.

DEPR:
The cell-free solution wherein the K 562 cells were dissolved was sampled in the amount of 0.5 ml in each of three tubes (capacity 2 ml) for centrifugation and each of the cell-free solution was diluted with a 10 mM phosphate buffer solution to bring the total volume to 2 ml. To three tubes for centrifugation were added respectively 0 molecule, 10 molecules, and 50 molecules of HIV-1DNA sampled from human leukocyte (NY 10 strains) cultured for the integration of the DNA of the AIDS virus. After vortexing, into each of the tubes for centrifugation was charged 2 .mu.l of the suspensoid (solid concentration: 10% by weight) comprising dispersed cationic magnetic polymer particles prepared in Example 6. The mixture was stirred at a rotating speed of 10 rpm at room temperature for 5 minutes. The magnetic polymer particles were then magnetically separated and 25 .mu.l of PCR reaction solution shown in Table 6 below was added to each of the magnetic polymer particles to carry out PCR reaction.

DEPR:
In Table 6, the sequences of Primer SK 145A.TM. and Primer SK 415A.TM. are respectively (5'CCCACAAGATTTAAACACCA 3') and (5'TGAAGGGTACTAGTAGTTCC 3'). These compounds were synthesized according to the maker manual using a DNA

synthesizer (type 381A, manufactured by Apride BIO System Co., Ltd). The synthesized product was subjected to HPLC (high performance liquid chromatography) to obtain an refined product.

DEPR:
As shown by the results in Table 5, it was confirmed that the magnetic polymer particles of the present invention could be utilized in the PCR process, because DNA could be recovered by magnetically separation instead of centrifugation using the magnetic polymer particles of the present invention.

DEPR:
The magnetic polymer particles of the present invention can be widely used for various applications and in various fields requiring magnetic responsibility because they have the above excellent characteristics. Therefore, the magnetic polymer particles of the present invention can be widely used as diagnostics by physically and chemically adsorbing, for example, an antigen, anti-body, protein, and nucleic acid. Also, when the magnetic polymer particles are used as diagnostics for enzyme immunoassay, the practicality and reliability of the diagnostics can be promoted because nonspecific coloring caused by the elution of iron ions from the magnetic polymer particles can be restrained. Also, since there is no case where a superparamagnetic substance is exposed on the surface of the magnetic polymer particles, the magnetic polymer particles of the present invention have excellent electrostatic properties and capabilities of forming film so that they are useful as material for magnetic toners, magnetic inks, and magnetic coatings.

DETL:
TABLE 6 _____ Composition of PCR reaction solution _____ 10 .times. Reaction buffer manufactured by Takara Co. 2.5 .mu.l dNTP mix (1 mM) manufactured by Takara Co. 5.0 .mu.l Primer SK 145A (20 mM) 0.5 .mu.l Primer SK 451A (20 mM) 0.5 .mu.l Tag DNA Polymerase (0.5 UNIT/ml) manufactured by 1.25 .mu.l Takara Co. Sterilized distilled water 5.25 .mu.l Mineral oil manufactured by Sigma Co. 5.25 .mu.l _____

CLPR:
10. The magnetic polymer particles according to claim 8, wherein the biologically activated material is a single stranded DNA fragment having 10-70 base pairs.